

Appl. No : 09/971,955
Filed : October 4, 2001

AMENDMENTS TO THE CLAIMS

The claims as listed below will replace all prior listings and presentations of claims in the above-identified application.

Please amend Claims 29-31, 54 and 72, and cancel Claims 67-71 without prejudice.

1-28 (CANCELLED)

29. (CURRENTLY AMENDED) A thin film structure, comprising:

a substrate;

an electrode formed over said substrate;

a nucleation layer for improving the uniformity of a crystal orientation of a BST film formed thereon, wherein said nucleation layer ~~is~~ consists essentially of a donor or acceptor dopant layer-material, said nucleation layer being formed over said first electrode; and

a BST film over the nucleation layer having a substantially uniform crystal orientation.

30. (CURRENTLY AMENDED) The thin film structure of Claim 29, wherein the ~~nucleation layer~~ the donor or acceptor dopant material is selected from the group consisting of Ti, Nb and Mn.

31. (CURRENTLY AMENDED) The thin film structure of Claim 29, wherein the ~~nucleation layer~~ donor or acceptor dopant material is a metal.

32. (PREVIOUSLY PRESENTED) The thin film structure of Claim 31, wherein the electrode has a {100} orientation to induce a {100} orientation in the BST film.

33. (PREVIOUSLY PRESENTED) The thin film structure of Claim 32, wherein the electrode is platinum.

34. (PREVIOUSLY PRESENTED) The thin film structure of Claim 29, wherein the BST film comprises between about 50 and 53.5 atomic percent Ti.

35. (ORIGINAL) The thin film structure of Claim 29, wherein the nucleation layer has a thickness of less than about 50 Å.

36. (ORIGINAL) The thin film structure of Claim 29, wherein the BST film has a thickness of about 150 to 300 Å.

37-53 (CANCELLED)

54. (CURRENTLY AMENDED) A thin film structure, comprising:

a substrate assembly;

a first nucleation layer formed over the substrate assembly;

an orientation layer formed over the first nucleation layer;

a second nucleation layer formed over the orientation layer; and

a BST film formed over the second nucleation layer, wherein the orientation layer and the BST film have substantially the same desired crystal orientation

wherein the first and second nucleation layers aid in forming the BST film with a substantially uniform crystal orientation, wherein the second nucleation layer consists essentially of a donor or acceptor dopant to correct for defects in the BST film.

55. (ORIGINAL) The thin film structure of Claim 54, wherein the first nucleation layer comprises NiO.

56. (ORIGINAL) The thin film structure of Claim 54, wherein the orientation layer and the BST film have a {100} orientation.

57. (ORIGINAL) The thin film structure of Claim 54, wherein the orientation layer comprises an electrode material.

58. (ORIGINAL) The thin film structure of Claim 54, wherein the orientation layer is made of a material selected from the group consisting of Pt, Ru, RuO_x, Ir, IrO_x, Pt-Rh, Pd and Mo.

59. (ORIGINAL) The thin film structure of Claim 54, wherein the orientation layer is made of platinum.

60. (ORIGINAL) The thin film structure of Claim 59, wherein the second nucleation layer comprises a material selected from the group consisting of Ti, Nb and Mn.

61. (ORIGINAL) The thin film structure of Claim 54, wherein the second nucleation layer has a thickness of less than about 50 Å.

62. (ORIGINAL) The thin film structure of Claim 54, wherein the BST film has a thickness of about 150 to 300 Å.

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63. (ORIGINAL) The thin film structure of Claim 54, further comprising an electrode formed over the BST film.

64. (ORIGINAL) The thin film structure of Claim 54, wherein the substrate assembly includes polysilicon.

65. (ORIGINAL) The thin film structure of Claim 54, wherein the BST film comprises between about 50 and 53.5 atomic percent titanium.

66. (ORIGINAL) The thin film structure of Claim 54, wherein the BST film comprises between about 52 and 53 atomic percent titanium.

67. – 71. (CANCELLED)

72. (CURRENTLY AMENDED) A thin film structure, comprising:

a substrate assembly;

an electrode material formed over the substrate assembly;

a nucleation layer formed over the electrode material; and

a BST film formed over the nucleation layer;

wherein the nucleation layer ~~is~~ consists essentially of a metal selected from the group consisting of Ti, Nb and Mn.

73. (ORIGINAL) The thin film structure of Claim 72, wherein the electrode material is Pt.

74. (ORIGINAL) The thin film structure of Claim 72, wherein the nucleation layer is Ti.

75. (ORIGINAL) The thin film structure of Claim 72, wherein the nucleation layer is Nb.

76. (ORIGINAL) The thin film structure of Claim 72, wherein the nucleation layer is Mn.

77. (ORIGINAL) The thin film structure of Claim 72, wherein the nucleation layer has a thickness of less than about 50 Å.